

Gulf Research Reports

Volume 7 | Issue 4

January 1984

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DOI: 10.18785/grr.0704.13

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Recommended Citation

Maples, R. S. 1984. A Preliminary Checklist of Epiphytic and Benthic Marine Diatoms of Louisiana. *Gulf Research Reports* 7 (4): 385-388.

Retrieved from <http://aquila.usm.edu/gcr/vol7/iss4/13>

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A PRELIMINARY CHECKLIST OF EPIPHYTIC AND BENTHIC MARINE DIATOMS OF LOUISIANA

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ABSTRACT A checklist of diatoms collected from the various habitats in coastal salt marshes, estuaries, and nearshore Gulf waters of Louisiana has been compiled for the first time. The checklist includes 193 taxa (species and their varieties) in 38 genera. The largest number of taxa are species of *Navicula* and *Nitzschia* with 46 and 36, respectively. Future studies of the varied habitats along the Louisiana coast should result in many new additions to this preliminary checklist.

INTRODUCTION

The algal flora of coastal Louisiana has been variously studied since the first reports of Featherman (1871, 1872). Kapraun (1974) surveyed the marine benthic green, red, and brown algae found on jetty structures bordering Louisiana's marine passes. *Vaucheria* species were recorded by Pecora (1977, 1980) from coastal salt marsh habitats. Maples (1982) described an edaphic bluegreen algal community associated with a coastal salt panne in southwestern Louisiana. Checklists of marine planktonic diatoms in the nearshore waters of Louisiana are found in papers by Featherman (1871, 1872), Simmons and Thomas (1962), Bamforth (1974), Housley (1976), Fucik and El-Sayed (1979), and Maples (1983a). Studies of marine benthic diatoms have been largely centered in the Mississippi delta region of Louisiana. Cook and Whipple (1982) described the spatial and temporal distribution of edaphic diatom communities along a complex gradient from brackish to saline marshland. Stowe (1982) investigated the distribution of epiphytic diatoms on the culms of *Spartina alterniflora* Loisel. Maples (1983b) reported on the taxonomy, diversity, and similarity of benthic diatom assemblages on the pneumatophores of the black mangrove *Avicennia germinans* (L.) L., in a Louisiana salt marsh.

Kalinsky (1983) compiled a checklist of non-marine algae from Louisiana. Many species found in Louisiana by this

author were not included in Kalinsky's (1983) checklist. An up-to-date list of diatoms in Louisiana's coastal environments was thought to be needed. In light of the reports of Wood (1963) and Medlin (1983) for Texas, and Sullivan (1981) for Mississippi, the present checklist contributes to our knowledge of the geographic distribution of marine diatoms.

Three different papers were used in the preparation of this checklist (Cook and Whipple 1982, Stowe 1982, Maples 1983b) as well as unpublished observations by this author. The present checklist is biased toward the epiphytic diatom flora of coastal salt marshes, but edaphic (sediment-associated) diatom taxa are included. A number of taxa are primarily freshwater forms, but these may be occasionally observed in brackish water habitats. The flora reported herein is of an edaphic or epiphytic nature, and represents marsh, estuarine, and nearshore habitats.

CHECKLIST FORMAT

For the purpose of this checklist, diatoms were considered to constitute the single class Bacillariophyceae. Genera are arranged alphabetically, and species with their varieties are arranged alphabetically within each genus following the format of Hendey's (1974) checklist for British marine diatoms. Species and their varieties collected only from the pelagic alga *Sargassum* are marked with an asterisk.

BACILLARIOPHYCEAE

ACHNANTHES Bory, 1822

- biasoletiana* (Ag.) Grun.
- brevipes* var. *intermedia* (Kütz.) C1.
- curvirostrum* Brun.
- exigua* Grun.
- hauckiana* Grun.
- lanceolata* var. *dubia* Grun.
- lemmermanni* Hust.
- submarina* Hust.
- subsessilis* Kütz.

temperei M. Perag.

AMPHIPRORA Ehrenburg, 1843

- alata* Kütz.
- paludosa* W. Sm.
- AMPHORA* Ehrenburg, 1831
- angusta* Greg.
- var. *angusta*
- var. *oblongella* Grun.
- bigibba* Grun.
- caroliniana* Giffen
- coeffeiformis* (Ag.) Kütz.
- exigua* Greg.

- granulata* Greg.
laevis var. *perminuta* Grun.
libyca Ehr.
pediculus (Kütz.) Grun.
proteus Greg.
sabyii Salah
tenerrima Hust.
tenuissima Hust.
ventricosa Greg.
ANOMOENEIS Pfitzer, 1871
sphaeophora (Kütz.) Pfitzer
BACILLARIA Gmelin, 1778
paxillifer (Müll.) Hendey
BERKELEYA Greville, 1827
rutilans (Trent.) Grun.
CALONEIS Cleve, 1894
westii (W. Sms.) Hendey
CAMPYLOSIRA Grunow, 1882
alexandrica Salah
CAPARTOGRAMMA Kufferath, 1956
crucicula (Grun.) Ross
COCCONEIS Ehrenburg, 1838
fluviatilis Wallace
placentula Ehr.
var. *placentula*
var. *euglypta* (Ehr.) Grun.
pseudodiruptoides Foged*
scutellum Ehr.
var. *scutellum*
var. *parva* Grun.
CYCLOTELLA Kützing, 1833
atomus Hust.
caspia Grun.
comta (Ehr.) Kütz.
meneghiniana Kütz.
striata (Kütz.) Grun.
stylorum Brightwell
CYLINDROTHECA Rabenhorst, 1859
gracilis (Bréb.) Grun.
CYMATOSIRA Grunow, 1862
belgica Grun.
CYMBELLA Agardh, 1830
pusilla Grun.
DENTICULA Kützing, 1844
subtilis Grun.
DIPLONEIS Ehrenburg, 1840
didyma (Ehr.) Ehr.
interrupta (Kütz.) C1.
var. *interrupta*
var. *caffra* Giffen
pseudovalis Hust.
smithii (Bréb.) C1.
weissflogi (A.S.) C1.
EUNOTOGRAMMA Weisse, 1854
laevis Grun. (*laeve*)
- FRAGILARIA** Lyngbye, 1819
brevistriata Grun.
construens (Ehr.) Grun.
var. *construens*
var. *venter* (Ehr.) Grun.
GOMPHONEMA Agardh, 1824
gracile Ehr.
littorale Hendey
parvulum Kütz.
GRAMMATOPHORA Ehrenberg, 1840
oceanica Ehr.*
GYROSIGMA Hassall, 1845
balticum (Ehr.) Rabh.
beaufortianum Hust.
fascicola (Ehr.) C1.
hummi Hust.
obliquum Boyer
peisonis (Grun.) C1.
LICMOPHORA Agardh, 1827
abbreviata Ag.
cf. *debilis* (Kütz.) Grun.
remulus Grun.*
MASTOGLOIA Thwaites, 1856
acutiuscula Grun.*
binotata (Grun.) C1.
crucicula (Grun.) C1.
dubia Kütz.
erythraea Grun.*
exigua Lewis
jurgensii Ag.
ovalis A.S.*
pumila (Grun.) C1.
pusilla (Grun.) C1.
var. *pusilla*
var. *subcapitata* Hust.*
MELOSIRA Agardh, 1824
nummuloides Ag.
NAVICULA Bory, 1822
abunda Hust.
accomoda Hust.
aequorea Hust.
ammophila Grun.
amphipleuroides Hust.
capitata var. *hungarica* (Grun.) Ross
circumtexta Meister
contenta Grun.
creuzburgensis Krasske
crucicula (W.Sm.) Donk.
cryptocephala Kütz.
cryptolyra Brockman
diserta Hust.
elegans W. Sm.
flanatica Grun.
gregaria Donk.
hudsonis Grun.
hyalinula DeToni

incomposita Hagelstein
 var. *incomposita*
 var. *minor* Hagelstein
lanceolata (Ag.) Kütz.
marina Ralfs
menisculus Schum.
mutica (Hilse) Grun.
 var. *mutica*
 var. *stigma* Patr.
nolens Simonsen
obsoleta Hust.
pavillardi Hust.
peregrina (Ehr.) Kütz.
phyllepta Kütz.
platyventris Meister
comoides (Ag.) Perag.
pseudocrassirostris Hust.
pupula var. *rectangularis* (Greg.) Grun.
salinarum Grun.
salinicola Hust.
schroeteri Meister
spicula (Hickie) C1.
subforcipata Hust.
taraxa Hohn & Hellerm.
tenera Hust.
teneroides Hust.
tripunctata (Müll.) Bory
 var. *tripunctata*
 var. *schizonemoides* (V.H.) Patr.
yarrenis Grun.
zostereti Grun.
NITZSCHIA Hassall, 1845
amphibia Grun.
angularis W. Sm.
apiculata (Greg.) Grun.
bicapitata C1.*
bilobata var. *ambigua* Mang.
brittonia Hagelstein
closterium W. Sm.
communis var. *hyalina* Lund
deblis (Arnott) Grun.
dissipita (Kütz.) Grun.
epithemioides Grun.
fasciculata (Grun.) Grun.
filiformis (W. Sm.) Schutt
frustulum (Kütz.) Grun.
 var. *frustulum*
 var. *perminuta* Grun.
gandersheimiensis Krasske
grana Hohn & Hellerm.
granulata Grun.
hungarica Grun.
lanceolata W. Sm.
lorenziana var. *subtilis* Grun.
minutala Grun.
microcephala Grun.

obtusius W. Sm.
 var. *obtusius*
 var. *nana* Grun.
palea (Kütz.) W. Sm.
panduriformis Greg.
 var. *panduriformis*
 var. *continua* Greg.
perversa Grun.
romana Grun.
romanoides Mang.
scalaris (Ehr.) W. Sm.
sigma (Kütz.) W. Sm.
tryblionella Hantz.
vitrea Norman
 var. *vitrea*
 var. *salinarum* Grun.
OPEPHORA Petit, 1888
parva (Grun.) Krasske
PARALIA Heiberg, 1863
sulcata (Ehr.) C1.
PLEUROSIGMA W. Smith, 1852.
angulatum (Quek.) W. Sm.
normanii Ralfs
salinarum (Grun.) Grun.
PSAMMODISCUS Round & Mann, 1980
nitidus (Greg.) Round & Mann
RHOPALODIA O. Müller, 1895
gibberula (Ehr.) Müll.
musculus var. *producta* Grun.
STAURONEIS Ehrenberg, 1884
amphioxys Greg.
 var. *amphioxys*
 var. *obtusius* Hendey
legeri Hust.
STRIATELLA Agardh, 1832
unipunctata (Lyngb.) Ag.*
SURIRELLA Turpin, 1828
angusta Kütz.
atomus Hust.
ovalis Bréb.
SYNEDRA Ehrenberg, 1830
affinis Kütz.
fasciculata (Ag.) Kütz.
 var. *fasciculata*
 var. *intermedia* M. Sullivan
demerarae Grun.
provincialis var. *tortuosa* Grun.*
tabulata var. *parva* (Kütz.) Hust.
THALASSIOSIRA Cleve, 1873
eccentrica (Ehr.) C1.
leptopus (Grun.) Hasle & Fryxell
TRACHYSPHENIA Petit, 1877
acuminata Perag.*
TROPIDONEIS Cleve, 1891
lepidoptera (Greg.) C1.
vitrea (W. Sm.) C1.

GENERAL SUMMARY

A total of 193 taxa (species and their varieties) representing 38 genera comprise the present checklist. Genera with the largest number of taxa are *Navicula* and *Nitzschia* with 46 and 36, respectively. The next most abundant taxa were species of *Amphora* (15), *Mastogloia* (11), and *Achnanthes* (10). Also well represented are *Cocconeis*, *Cyclotella*,

Diploneis, *Gyrosigma*, and *Synedra* with six taxa each. Eleven taxa were collected only from *Sargassum* in the near-shore waters of southwestern Louisiana.

The present checklist provides important distributional information of an ecologically important group of organisms. Future studies of the varied habitats along the Louisiana coast should result in many new additions to this preliminary checklist.

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